



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bryan Spiess, et al.
Serial No. : 10/068,243
Filed : February 6, 2002 Group Art Unit: 3726
For : CONVEYOR ROLLER Examiner: M. Jimenez
Docket No. : A 490-003-PAT

Commissioner of Patents and Trademarks
Washington, D. C. 20231

APPEAL BRIEF

(1) **Real Party of Interest:**

The real parties of interest are Bryan Spiess and John Dallum of Minneapolis, MN the joint inventors. The Final Office Action does not identify the second joint inventor.

(2) **Related appeals and interferences:**

There are no other related appeals or interferences.

(3) **Status of the Claims:**

Claims 1 through 13 are rejected

(4) **Status of amendments:**

The amendment filed March 19, 2003 was entered.

(5) **Summary of invention:**

The application as filed concerned a solid polymer roller, which could be use in a wide variety of fields. The application also described a preferred polymeric roller with a particular focus for the airfreight industry. Substantial weight and maintenance advantages are found in this invention when used in aircraft. Aircraft parts, however, are held to a high standard to be considered operable, since the parts will be off the ground away from help for substantial periods of time.

No references were found with a solid polymeric aircraft roller. Consequently, the focus of the claims has been drawn to polymeric aircraft rollers, which have specific critical requirements that must be followed for the roller to properly function in an aircraft. Such critical requirements are found in the claims in the form of physical properties of the polymer.

(6) **Issues:**

Whether the claim term "homogenous" is to be interpreted in light of the specification with support from the common meaning, or may it be interpreted in light of the common meaning and in direct conflict with the disclosure?

Whether polymers which are suitable for rollers in a variety of fields make obvious the specific physical properties of a solid polymeric aircraft roller?

(7) **Grouping of Claims:**

Group 1 - Claim 6 was rejected under 35 U.S.C. §112.

Group 2 - Claims 7, 10 and 13 were rejected under 35 U.S.C. §102.

Group 3 - Claims 1-6 were rejected under 35 U.S.C. §103

Group 4 - Claims 8 and 9 were rejected under 35 U.S.C. §103

Group 5 - Claims 11 and 12 were rejected under 35 U.S.C. §103

(8) **Argument:**

Group 1 - Claim 6 rejected under 35 U.S.C. §112

Claim 6 reads in pertinent part:

An aircraft roller comprising:

a homogenous roller having:

- (1) an outer housing constructed from a polymer selected from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvinylidene fluoride, the polymer having a burn rate of less than 4.0 inches per minute, a compressibility strength of at least 200 psi, impact strength of at least 0.5 (ft.lbs.)/inch, flexural strength of at least 20 psi....

(emphasis added).

Claim construction is an issue of law. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). To ascertain the meaning of a claim, the governing authority considers three sources: **the claims, the specification, and the prosecution history.** *Id.* At 978 (citing *Unique Concepts, Inc. v. Brown*, 939 F.2d

1558, 1561 (Fed. Cir. 1991))(emphasis added). Dictionary definitions are actually secondary and are not to trump the meaning from the specification. A court **may**, in its discretion, receive extrinsic evidence in order to aid it in coming to a correct conclusion as to the true meaning of the language employed in the patent. *Markman*, 52 F.3d at 980 (citing *Seymour v. Osborn*, 78 U.S. 516, 546 (1871)). Extrinsic evidence upon which a court **may** rely in construing patent claims consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, **dictionaries**, and learned treatises. *Markman*, 52 F.3d at 980. Certainly a claim term should be interpreted in light of the specification and where possible in concert with the dictionary meaning.

The Examiner agrees that the application described the roller as being monolithic, but did not use the term homogenous and thus, the amendment, according to the Examiner, sought to add new matter. The Examiner states that homogenous means "of the same or a similar kind or nature". "Monolithic" means solid and uniform. The disclosure goes to some length to explain that the roller is a solid piece of polymer with specific physical properties that are expressed in the claims. Instead of interpreting "monolithic" and "homogenous" as having the same meaning, e.g., in light of the specification and dictionary, the Examiner opted to interpret "homogenous" in a manner consistent with the dictionary, a secondary source, but incongruous with the disclosure, primary source. The Examiner made clear that he was using an interpretation incongruous with the disclosure in stating that the definition he was using was to "add new matter" to the application. Even an incongruous example was offered

(and used in part of the Group 3 rejection), e.g. homogenous could be used to describe multiple layers of different material, i.e. same/homogenous thickness.

The claim does not state "homogenous thickness" as the Examiner has proposed the claim be read. Rather the claim states "homogenous roller" as shown in bolded text in the claim above. The claims and the specification describe the roller as being fabricated of polymer with particular physical properties. Interpreting the term homogenous in light of the specification results in a definition that is synonymous with monolithic; a "roller of the same nature, solid and uniform" (definitions of homogenous and monolithic merged to show consistent meaning). Claim interpretation is not to be done in conflict with the specification, as was done to support this rejection and part of the Group 3 rejection below. Proper interpretation shows the rejection under 35 U.S.C. §112 is inappropriate and should be withdrawn.

Group 2- Claims 7, 10 and 13 rejected under 35 U.S.C. §102 as being anticipated by Thompson et al. (4,203,509)

Claims 10 and 13 depend from claim 7. Claim 7 reads:

An aircraft roller comprising:

a cylindric roller body, the roller body having a length and a diameter, the roller also having an aperture extending along and through the center of the roller, **the roller fabricated from a polymeric material, the polymer having a burn rate of less than 4.0 inches per minute; and**
a cargo aircraft joined to the roller.

(Emphasis added).

Claim 13 states:

The aircraft roller of claim 7 wherein the polymer has a **compressibility strength of at least 20 psi, impact strength of at least 0.5 ft. Lbs. /in. and flexural strength of at least 20 psl.**

Thompson et al. discloses a roller that has a nylon "tire" disposed about a body 10 (material undisclosed believed to be metal) does not show "a roller fabricated from a polymeric material. In particular, Thompson et al. teaches that his polymer is not capable of supporting the weights borne by rollers when it states:

However, with increasing load, the tire is locally flattened to the limiting radial extent R_1 minus R_2 , whereupon all further increments of load are sustained by flange surfaces 15 alone.

The remainder of the paragraph describes several more reasons why the "polymeric tire" will not function as a polymeric roller. (Col. 2 line 66- col. 3, line 14). Thompson does not have a roller fabricated from a polymeric material, but rather discloses a roller that has a polymeric part.

Moreover, Thompson et al. does not disclose "the polymer having a burn rate of less than 4.0 inches per minute". The Examiner cites to page 5 of the present application which provides a list of polymers suitable for rollers of general use in accordance with applicant's invention. Apparently, the Examiner missed the statement on page 9, lines 3-6, where the polymers for aircraft need to have physical properties different from the standard roller. Based upon the general list on page 5, the Examiner automatically assumed, without support, that nylon has all the physical properties

required for solid aircraft roller, since nylon is in applicant's list of suitable polymers for a general type of roller. The Examiner then takes another leap of faith and asserts that since Thompson uses nylon, his polymer must also have the physical properties applicant discloses for an aircraft roller fabricated from polymeric material¹. The assumption and leap of faith are neatly described as "inherent" within Thompson et al. A similar logic was used to "inherently" find the physical properties of claim 13 within the four corners of Thompson et al. The fact is, Thompson et al. does not disclose that the polymer, from which the roller is fabricated, has a burn rate of 4.0 inches or less, compressibility strength of at least 20 psi, impact strength of at least 0.5 ft. Lbs. /in. and flexural strength of at least 20 psi. The rejection should be withdrawn.

Group 3 - Claims 1-6 were rejected under 35 U.S.C. §103 over Thompson et al. in view of Rowles (6,354,424)

Claims 2-5 depend from claim 1. Claim 1 reads in pertinent part:

1) An aircraft roller system [having at least one operable roller unit, each roller unit] comprising:

- (1) a roller adapted to communicate cargo into and out of an aircraft, the roller being cylindrical in shape having a length and a diameter, the roller having a center aperture extending through the length of the roller and the roller being fabricated from a polymer, the polymer having a burn rate of less than 4.0 inches per minute, a compressibility strength of

¹ There is perhaps an infinite number of nylons all with varying physical properties, but the Examiner treats all nylons as having the same physical properties.

at least 200 psi, impact strength of at least 0.5 (ft.lbs.)/inch, flexural strength of at least 20 psi;...

(emphasis added). Thompson et al. does not disclose "the roller being fabricated from a polymer" as described above. Thompson et al. does not disclose the physical properties and in fact teaches away from them (Column 2, line 63 - Column 3, line 14). Rowles was offered to show a roller rack joining the roller to an aircraft, and does not address the teachings missing from Thompson et al.

The Examiner does reference a point in Thompson where a preferred nylon is identified as "super-tough" Col. 3, lines 21-30. Thompson does not actually assert the nylon is super-tough and in fact makes a somewhat derogatory statement in regards to toughness. Specifically, Thompson states, "so-called super-tough nylon". Regardless, nylon is tough in that many nylons are resistant to degradation from petroleum products. Still, Thompson et al. does not disclose the physical properties specified in applicants claims nor fabricating the roller out of polymer. Thompson et al. only discloses a polymeric part that is joined to a roller, which is not fully capable of supporting the weight of the cargo. (Col. 2, lines 63 - Col. 3, line 14).

The Examiner mentions that the polymers specified in claims 2 and 3 are not found in Rowles or Thompson et al. (Final Office Action page 6, lines 6-7). The conclusion of the following paragraph, page 6, line 16, we again see the oversight that is causing these rejections. The Examiner keeps referring to a list of polymers suitable for rollers of general use. However, throughout the application, comments are made as to the particular physical properties that are needed for aircraft. Moreover, the

application at page 9, lines 3-6 again makes a separation when the use is for aircraft. Further yet, applicant submitted an affidavit setting forth the criticality of the physical properties.

Claim 6 reads:

6) An aircraft roller comprising:

a homogenous roller having:

- (1) an outer housing constructed from a polymer selected from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvynilidene fluoride, the polymer having a burn rate of less than 4.0 inches per minute, a compressibility strength of at least 200 psi, impact strength of at least 0.5 (ft.lbs.)/inch, flexural strength of at least 20 psi;**
- (2) the outer housing further having a central aperture disposed longitudinally therethrough; and**
- (3) a bearing located surrounding the central aperture and attached to the outer housing;**

a roller rack joined to the roller; and

an aircraft operably joined to the roller rack.

Thompson et al. does not show a homogenous roller within the meaning of the claim or the description. (See Group 1 discussion above). The Examiner asserts the Thompson et al. roller is homogenous, since the outer and inner layers are cylindrical,

e.g., homogenous in shape. The claims, however, must be read in light of the disclosure. According to Webster's "homogenous" means "of the same or a similar kind or nature". The disclosure and the claim are quite clear that the same or similar nature has to do with the material and its physical properties. The inner and outer layers of Thompson et al. are different materials with different properties (Col. 2, line 63 - col. 3, line 14).

Thompson et al. and Rowles do not disclose the polymers as agreed on page 6 of the Final Office Action and as discussed above.

Thompson et al. and Rowles do not disclose the physical properties as discussed above.

Group 4 - Claims 8 and 9 were rejected under 35 U.S.C. §103 as being unpatentable over Thompson et al. in view of Rowles.

Claims 8 and 9 depend from claim 7, which is addressed above (Group 2) with regard to Thompson et al. Thompson et al. does not disclose the physical properties. Rowles fails to teach the physical properties as well.

Group 5 - Claims 11 and 12 were rejected under 35 U.S.C. §103 as being unpatentable over Thompson et al.

Claims 11 and 12 depend from claim 7 and identify particular polymers, which the Examiner agrees cannot be found in Thompson et al. Claim 7 is allowable over Thompson et al. for the reasons described above with regard to the rejection of claim 7 and whether it is anticipated by Thompson et al. (Group 2 above).

CONCLUSION

The present application should be allowed as it stands. The Examiner should not apply a meaning to the word "homogenous" that differs from the clear meaning of the specification, using a secondary source to trump a primary source. (This is a bit like a district court overruling the Supreme Court or the Examiner overruling the CAFC in *Markman*.). The Examiner has not found a reference or combination thereof teaching applicant's invention, namely that a functional aircraft roller can be made of polymer if one uses a polymer with the particular physical properties identified in applicant's claims. The Examiner's assertion that all members of the nylon family have the same physical properties needs to be withdrawn.

REQUEST

Applicant makes his request under 37 C.F.R. §1.104(d)(2) for an appropriate affidavit from the Examiner.

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(9) **Appendix:**

The Claims as currently presented:

(1) **An aircraft roller system comprising:**

- (1) a roller adapted to communicate cargo into and out of an aircraft, the roller being cylindrical in shape having a length and a diameter, the roller having a center aperture extending through the length of the roller and the roller being fabricated from a polymer, the polymer having a burn rate of less than 4.0 inches per minute, a compressibility strength of at least 200 psi, impact strength of at least 0.5 (ft.lbs.)/inch, flexural strength of at least 20 psi;
- (2) a shaft in the form of an elongate cylinder having a diameter sized to rotatably fit within the central aperture of the roller, the shaft further having means for retention located upon the shaft ends;
- (3) an elongate "U" shaped roller rack, the roller rack sized to extend the length of the roller and having a pair of upwardly extending ends located adjacent the ends of the roller, each end having an aperture sized to receive the respective shaft end and locate the shaft in a fixed location the rack being joined to an aircraft.

- (2) The aircraft roller system as described in claim 1 wherein the polymer forming the roller is a polymer select from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvinylidene fluoride.
- (3) The aircraft roller system as described in claim 1 wherein the polymer forming the roller is an acetyl copolymer.
- (4) The aircraft roller system as described in claim 1 further comprising a pair of bushings having central openings fitted within the central aperture of the roller and attached to the roller sized to rotatably accept the shaft within their respective central openings.
- (5) The aircraft roller system as described in claim 1 further comprising a pair of bearings having central openings fitted within the central aperture of the roller and attached to the roller sized to rotatably accept the shaft within their respective central openings
- (6) An aircraft roller comprising:
 - a homogenous roller having:
 - (1) an outer housing constructed from a polymer selected from the group consisting of polysulfone, polyetherimide, polyetherketone,

polyphenylene sulfide and polyvinylidene fluoride, the polymer having a burn rate of less than 4.0 inches per minute, a compressibility strength of at least 200 psi, impact strength of at least 0.5 (ft.lbs.)/inch, flexural strength of at least 20 psi;

- (2) the outer housing further having a central aperture disposed longitudinally therethrough; and
- (3) a bearing located surrounding the central aperture and attached to the outer housing;

a roller rack joined to the roller; and

an aircraft operably joined to the roller rack.

- (7) An aircraft roller comprising:

a cylindric roller body, the roller body having a length and a diameter, the roller also having an aperture extending along and through the center of the roller, the roller fabricated from a polymeric material, the polymer having a burn rate of less than 4.0 inches per minute; and

a cargo aircraft joined to the roller.

- (8) The aircraft roller of claim 7 further comprising a pair of bushings fitted within aperture of the roller extending inwardly into the aperture of the roller.

- (9) The aircraft roller of claim 8 wherein the pair of bushing is merged into a single bushing extending through the roller.
- (10) The aircraft roller of claim 7 further comprising a pair of bearings fitted within aperture of the roller extending inwardly into the aperture of the roller.
- (11) The aircraft roller of claim 7 wherein the polymeric material of the roller is selected from the group consisting of polysulfone, polyetherimide, polyetherketone, polyphenylene sulfide and polyvinylidene fluoride.
- (12) The aircraft roller of claim 7 wherein the polymeric material of the roller is an acetyl copolymer.
- (13) The aircraft roller of claim 7 wherein the polymer has a compressibility strength of at least 20 psi, impact strength of at least 0.5 ft. Lbs. /in. and flexural strength of at least 20 psi.